

WHAT IS CLAIMED IS:

1. A heat sinkable package, comprising:
a power device package including an active side and a non-active side, wherein the non-active side includes a heat sinkable surface positioned adjacent to a product case.
2. The heat sinkable package according to Claim 1, wherein the power device package includes at least one flip chip.
3. The heat sinkable package according to Claim 2, wherein the at least one flip chip is positioned over a flexible circuit.
4. The heat sinkable package according to Claim 3, wherein the flexible circuit is laminated to a ring carrier.
5. The heat sinkable package according to Claim 3, wherein the flexible circuit is selected from the group consisting of copper, polyimide, and a thin FR-4 Core Material.
6. The heat sinkable package according to Claim 2, wherein the power device package includes a thermoset epoxy resin that underfills high temperature balls of the flip chips.
7. The heat sinkable package according to Claim 6, wherein the flexible circuit includes central passages and perimeter passages that permits the simultaneous underfilling and overmolding of the at least one flip chip.
8. The heat sinkable package according to Claim 1, wherein the power device package includes a copper lead frame, a silicon integrated circuit, a copper lead frame wire bond input/output connected to the silicon integrated circuit by a wire and a gold ball bond.
9. The heat sinkable package according to Claim 1 further comprising a thermal interface intermediately located between the product case and the non-active side.

10. The heat sinkable package according to Claim 9, wherein the thermal interface is selected from the group consisting of a metallic solder, a thermally conductive adhesive, a thermally conductive grease, and a thermal film.
11. The heat sinkable package according to Claim 1, wherein the power device package is a ball grid array package.
12. The heat sinkable package according to Claim 1, wherein the power device package is a quad-flat non-leaded package.
13. A method for manufacturing a heat sinkable package comprising the steps of:
 - placing at least one flip chip over a flexible circuit within a mold tool;
 - compensating for height variances of the flip chips; and
 - positioning an input/output on an active side of the power device package opposite a non-active side of the power device package.
14. The method for manufacturing a heat sinkable package according to Claim 13, further comprising the steps of:
 - closing an upper mold half about a lower mold half;
 - simultaneously underfilling and overmolding the flip chips with a thermoset epoxy resin to form a power device package.
15. The method for manufacturing a heat sinkable package according to Claim 14, further comprising the step of dispensing a Teflon film about the upper mold half and lower mold half prior to the placing step.
16. The method for manufacturing a heat sinkable package according to Claim 13, wherein the at least one flip chip comprises a first flip chip and second flip chip, wherein the first flip chip includes a first height that is greater than a second height of the second flip chip,

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wherein the compensating step further comprises deforming the flexible circuit such a top portion of the a first flip chip is level with a top surface of the second flip chip.

17. The method for manufacturing a heat sinkable package according to Claim 13 further comprising the step of applying a gold film to the non-active side.